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# SEMINAR REPORT

CENTER FOR THE STUDY OF INTELLIGENCE

CENTRAL INTELLIGENCE AGENCY

TR/SR 76-03

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CENTER FOR THE STUDY OF INTELLIGENCE

25 May 1976

Fifth Seminar on Intelligence Analysis: Scientific and Technical Analysis

1. The fifth in a series of intelligence analysis seminars, held on 27 April, focused on scientific and technical analysis. The seminar opened with a presentation by three panelists asked to offer their views on aspects of S&T analysis of personal concern to them. David Brandwein, Director, Office of Technical Service, presented a set of maxims for scientific and technical analysts (see list attached); [redacted] defined the differences between scientific and technical and other types of analysis done throughout the Agency; and [redacted] offered some suggestions on how product quality might be judged in S&T analysis.

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What is Different About S&T Analysis?

2. [redacted] said he did not believe there are a large number of differences, but there is at least one of significance. It stems from the objective, factual basis of the laws of nature with which S&T analysis deals as opposed to the more subjective realm of political theory, military strategy, and human behavior which form some of the subject

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matter for other analytic fields. The latter are largely open to debate, but most people do not debate Einstein's theory of relativity or other scientific or natural laws. While Stalin could implement certain economic theories which many believe were unworkable, he could not reverse the laws of genetics, as he tried to do. The laws of nature are a factor that is important in both the production and reception of S&T analysis. One participant in the seminar noted that many people lack interest in S&T analysis because they find it difficult to formulate or to give voice to their own opinions when such opinions seem ultimately to challenge that court of appeal, the laws of nature. There is, in essence, little room for the non-scientific specialist to speculate on most of the S&T analysis.

3. Turning to the issue of what is most important for S&T analysis, [redacted] stressed objectiveness; both the analysis and the scientific research that initiated the cycle must be objective if they are going to be any good. The greatest derangement of the human mind is to believe in something because one wishes it to be so. One difficulty in striving for objectivity is the natural tendency of the analyst to transfer the logic of his own S&T premises to his analysis of scientific and technical

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developments in other nations, such as China and the Soviet Union. Developments in those countries do not necessarily follow technically objective, logical courses because the leaders of the S&T communities there are often under pressure to put political and other considerations ahead of the technical and logical ones. One of the Brandwein maxims (3) closely paralleled this point.

4. Also important in achieving objectivity, in

25X1A [redacted] view, is the fact that an intelligence analyst should not have a stake in the outcome of his analysis. In

25X1A a related comment, [redacted] noted that there is a danger in assigning contractors to projects in which they are asked for too much judgmental input as contrasted to technical analysis in a specified area. The contractor assigned judgmental tasks can too easily become the expert and the brains doing the work that the Agency analyst should be doing.

25X1A 5. [redacted] also took note of the difficulties posed for the S&T analyst by inter-disciplinary work which

25X1A [redacted] believes makes the S&T analyst uncomfortable. The analyst is usually of a mind that he can do whatever analysis is needed in the non-technical disciplines himself, without team help. "You don't find many economists who claim to be able to do nuclear analysis, but a nuclear



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analyst will say he can do economic analysis, and everyone thinks he can do political analysis."

Quality in S&T Analysis

25X1A 6. [redacted] spoke on the quality of S&T analysis, and how to distinguish good from bad. It was bothersome, he said, to see those in the community whose analysis was wrong on an early issue like the so-called SA-5 system continue to prosper in the S&T analytical world after such a fundamental judgmental error. It is often difficult to prove analysis correct--we do not want "proof" of the accuracy of the Soviet's most lethal ICBM. Only occasionally in technical intelligence will we ever know whether or not our analysis is correct. Thus, we need some more subtle standard of judgment on the quality of analysis, perhaps a formal

25X1A mechanism for criticism. [redacted] suggested that just as novelists, composers, and artists are judged by hired critics, some subjective, critical standards could also be applied to S&T analysis, such as:

a. Does the work have a ring of truth--is it believable? Is it erected on a logical framework that stayed within the rules, examined all the evidence objectively, and permitted the conclusions to result



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from the analysis and facts rather than from preconceptions?

b. Does it illuminate some subject that people are concerned with, an important problem or central issue? Does it tie in the analysis done with the larger, clearly significant issue, and does it equip the reader to make informed judgments?

c. Is the tale well told? Perhaps we have gone as far as we can with the formal mechanics of editorial structuring in today's reports and memoranda. We should now pay more attention to telling the story so the reader really gets the message.

25X1A 7. [redacted] remarks led to a discussion of how to formalize some system of qualitative judgment for S&T analysis. The use of an evaluation system for analysis similar to the grading applied within the DDO on intelligence reports received from stations abroad was suggested. This would theoretically be possible not just for S&T intelligence analysis, but also for economic and political intelligence analysis. Yet, there is frequent criticism that the grading system within the DDO tries to quantify the unquantifiable. Quality could also be judged in terms of responsiveness of

the analysis to the current KIQ list. The problem with this and KIQ list predecessors--in the view of one participant--is that they grew from brief lists on truly critical issues to omnibus coverage of everything everyone wanted to know. In his view, the new KIQ list is much too long and is now running amuck. [redacted] suggested that another system of judging quality would be to empanel some "old curmudgeons," former employees who were bold enough to reach and offer unsubstantiated, subjective judgments on the quality of analysis--because they have nothing to lose or gain by favorable or unfavorable opinions. This idea was well received by the participants.

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8. The various Committees which meet from time to time on substantive areas of S&T analysis, such as the Weapons Systems and Space Committee, the Telemetry and Beacon Analysis Committee, etc., provide good cross-fertilization on the breadth of analysis in the S&T field and might be utilized to critique the product, although there would be the danger of "backscratching." The Committees have heretofore dealt mostly with substantive questions and less with quality of analysis, methodology, and form. They might well devote some of their time to the latter.

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Some Intelligence Maxims (See Attached List)

9. Mr. Brandwein's admonition in his maxims--that the best efforts of the analyst should be devoted to the writing of the conclusions to his report to make them as lucid and precisely worded as possible because most scientific and technical analysis is not in fact read beyond the conclusions--found agreement among the participants and led to a lively discussion of why. There was much criticism by participants of poor writing, incomprehensible language full of technical jargon laced with nicknames for weapon systems that compound reading difficulties. One participant said that good scientific and technical analysis is being done, but that there is also a great deal of unimaginative analysis amounting to well over 50 percent of the total: there is too much reporting and not enough analytical work in finished publications. S&T writing often fails to touch on issues pertinent to the consumers in an understandable way. Presentational methods were criticized and were generally suggested as an S&T area which needs much improvement.

10. Mr. Brandwein's second maxim was challenged. (Avoid preconceived positions at the beginning of an analytical project which prevents flexibility in abandoning the hypotheses if new data demonstrates the original hypotheses to be unsound.) When managers assign important



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projects to analysts, the latter should think out how they are going to proceed and the objectives they are shooting for and should be able to discuss this with their superiors. The superiors in turn should help the analyst in relating his analysis to the larger and significant context which lends to the project its importance and relevance. This also helps assure the implementation of maxim one.

11. There was disagreement among the participants about Mr. Brandwein's maxim that advisory panels of eminent scientists are usually useless since the members are seldom able to commit the time necessary to be of serious assistance. Some participants objected to the maxim, claiming that panels can and do assist in introducing new concepts and approaches, and challenging assumptions. Other participants criticized our use of panels as being too frequently composed of persons highly competitive with each other, each trying to outdo fellow panel members rather than shedding light on the problem at hand. One-day panels were deemed less useful than more lengthy ones where the task to be accomplished is spelled out carefully in advance and an agenda is followed to conclusion.

12. An additional maxim proposed by a participant was that any intelligence practice underway for a period of years should be sharply scrutinized at set intervals to



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assure that it has continued validity. This was illustrated with the elint on radars which used to be reported once every 90 minutes when it was actually needed only once every six months. "We need a sort of sunset law on such SOPs. No one really missed the type of information provided by the PUEBLO when that was cut off."

NOTE

The Center for the Study of Intelligence in OTR operates a research and discussion program keyed to the processes and functions of intelligence. The objective of the Center is to contribute to the professional understanding and record of the art of intelligence. Research projects are undertaken by intelligence "fellows"--volunteer officers from across the Agency on full-time detail to the Center. Inquiries about the Center program, or comments on this report are invited by the Director/CSI on extension 2193.




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# MAXIMS FOR ANALYSTS

1. Before launching into an analysis effort, ask yourself why it's important, and keep asking this question as you proceed. It's easy to trap yourself into a research effort which is intellectually satisfying, but has no prospects of enhancing national security even if successful.

2. Beware of getting yourself locked into a position at the beginning of the analysis cycle. You must be flexible enough to junk your first hypothesis if new data shows it to have been unsound.

3. In trying to understand foreign weapons programs, avoid giving too much weight to your perception of the requirement for the system. Also, avoid the "not invented here" syndrome.

4. Be willing to publish a technical report without having all the data at hand, even if some of the conclusions are tenuous. You'll never publish if you insist on waiting for all the data to come in.

5. When you write up the results of your research, devote your best efforts to making sure that the conclusions are lucid and as precisely worded as possible. The conclusions section is the only part of your report most people will read.

6. You are not done when you have published a technical report describing your work. People at the policy level don't like to read, and you must be prepared to give an oral brief of your work if it is to have any impact.

7. Advisory panels of eminent scientists are usually useless. The members are seldom willing to commit the time to studying the data to be of much help.

8. Stop griping about all the millions spent for collection and processing compared to the pittance spent for analysis. That's the nature of things.

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PREVIOUS SEMINAR REPORTS IN THIS SERIES

1. Intelligence Analysis in the CIA Today (Confidential) (15 August 1975)

2. Multi-Disciplinary Analysis in the CIA (Unclassified) (17 October 1975)

3. Intelligence Support for Policy Making (Secret) (12 December 1975)

4. A Consumer's View of Intelligence Analysis (Secret) (27 February 1976)

Copies of these reports are available from the CSI.


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